

REMARKS

Claims 1-15 are pending in the present application. Claims 4 and 12-15 are withdrawn from consideration. Claims 1-3 and 2-11 are rejected. Claims 2, 3, 6, 8 and 9 are herein canceled. Claims 1, 5, 7, 10 and 11 are herein amended. No new matter has been entered.

Restriction

Applicants confirm the selection of claims 1-11, drawn to a gas barrier laminated film, classified in class 428, subclass 516+, and the election of biaxially stretched polypropylene film substrate of claim 5. The election includes claims 1-3 and 5-11.

Rejections under 35 U.S.C. §112, second paragraph

Claim 11 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. The Examiner notes that the phrase “modified propylene polymer” lacks clear antecedent basis.

Applicants herein amend claim 11 to depend from claim 10

Rejections under 35 U.S.C. §103(a)

Claims 1-3 and 5-11 are rejected under 35 U.S.C. §103(a) as being unpatentable over Murai et al. (U.S. Patent 5,770,301) in view of Breant et al. (U.S. Patent 5,712,041), Watanabe et al. (U.S. Patent 4,501,797) and Super et al. (U.S. Patent 4,501,797).

The Examiner asserts that Murai et al. disclose a barrier composite comprising biaxially stretched polypropylene coated with primer layer such as vinyl chloride-vinyl acetate copolymer (col. 4, lines 45-50 and col. 5, lines 16-32), silicon oxide layer over the under coating and barrier coating ethylene vinyl alcohol copolymer (EVOH) having ethylene content from about 5 to 50 mol% over the silicon oxide layer (column 7, line 61 to column 8, line 7 and claim 18). The Examiner notes that Murai et al. also disclose that modified polypropylene and vinyl chloride-vinyl acetate copolymer as being equivalent (column 10, line 62 to column 11, line 20), Murai et al. fail to disclose a blend of claimed EVOH and (meth)acrylic acid polymer and polypropylene/modified polypropylene composite.

The Examiner asserts that Breant et al. disclose bonding heat sealable layer to a silicon oxide coated biaxially stretched film using a mixture of EVOH and copolymer of ethylene with unsaturated carboxylic acids, their salt or their esters for improved barrier properties (column 3, line 14 to column 4, line 26, and Table under Example 1).

The Examiner asserts that Watanabe et al. disclose a mixture of EVOH and thermoplastic resin containing an unsaturated carboxylic acid such as methacrylic acid or acrylic acid (column 9, lines 5-16, Examples).

The Examiner asserts that Super et al. disclose a gas barrier film comprising biaxially stretched polypropylene layer 12, modified polypropylene layer 14 and barrier EVOH layer 16 (Fig. 1, column 4, lines 4-10).

The Examiner concludes that it would have been obvious to utilize disclosures of Breant et al., Watanabe et al. and Super et al. in the invention of Murai et al. to use modified

polypropylene as under layer and to use a mixture of EVOH and (meth)acrylic acid polymer as taught by Breant et al. and Watanabe et al.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Finally, there must be a reasonable expectation of success. (Manual of Patent Examining Procedure §2142). The teaching or suggestion to make the claimed combination and the expectation of success must both be found in the prior art, and not be based on Applicant's disclosure.

Applicants herein amend claim 1 to clarify the invention. Thereafter, Applicants respectfully disagree with the rejection because even of the cited references were combined, not all of the claimed limitations are met by the cited combination.

While Applicants understand that references in a combined rejection may not be attached individually, Applicants herein discuss the references to illustrate mischaracterizations of them, to show that they would not be so combined as asserted, and to show that even if they were so combined, the present invention is not taught by the combination thereof.

Applicants note that claim 1 includes the limitation wherein the (meth)acrylic acid polymer (b2) is selected from the group consisting of polymers of (meth)acrylic acid, (meth)acrylic ethyl and butyl esters, and a copolymer with (meth)acrylic amide. This limitation is supported in the specification on page 13, lines 7-12. As evidenced from the description on

page 21, lines 13-19 and illustrated in the Examples, the presently claimed invention achieves a gas barrier layer excellent in transparency, a gas barrier property against oxygen under high humidity and high bending resistance by utilizing the specific component (b2).

Applicants note that in Murai *et al.* relating to a barrier composite film, there is disclosed that a (polyester) base film which may be an unoriented or oriented film such as monoaxially or biaxially oriented film (Col. 4, line 62 *et seq.*) is coated with an inorganic thin layer and a barrier layer comprising various resins such as vinylidene chloride-based copolymer, (meth)acrylic resins, and ethylene-vinyl alcohol copolymer (from Col. 7, line 28 to Col. 8, line 7). In Murai *et al.*, however, the barrier resin is exclusively vinylidene chloride-based copolymer (in all Examples) and fails to give a concrete explanation on the use of (meth)acrylic polymer and ethylene vinyl alcohol copolymer as gas barrier resin.

In contrast, the presently claimed component (b2) is specifically defined as 3-15% (meth)acrylic polymer having been neutralized partially, while the composition (b3) is specifically defined as being composed of 95-10 weight % of the component (b1) and 5-90 weight % of the component (b2) in Claim 1 of the present case after revision at this time. Thus, it is to be understood as the characteristic feature of the present invention that, according to the amended Claim 1, EVOH (b1) having the specific ethylene content (1-19 mol %) and (meth)acrylic acid polymer (b2) neutralized within a specific range (3-15%) are used in a specific ratio [95-10 weight % of (b1) : 5-90 weight % of (b2)]. Such feature is neither described nor suggested in Murai *et al.*, and there is no teaching in the secondary references to direct one to assume the feature.

Concerning Breant *et al.* relating to a packaging material comprising SiO₂ layer and a polyolefin layer, the Examiner contends that a heat sealable layer is bonded to a SiO₂ coated biaxially stretched film by the aid of a mixture of EVOH and copolymer of ethylene with unsaturated carboxylic acid or a salt or ester for improving barrier properties. In fact, the joint use of EVOH and other ethylene copolymer is disclosed therein as binder. In contrast to this, Claim 1 of the present invention after revision gives such a specific definition that the (meth)acrylic acid polymer (b2) used jointly with EVOH has been neutralized to a specific range (3-15%) and is used in a specific ratio [95-10 weight % of (b1) and 5-90 weight % of (b2)]. Thus, the (meth)acrylic acid polymer (b2) does not contain any monomeric component of hydrocarbon. Thus, Breant *et al.* nowhere gives any disclosure on the component (b2).

Concerning Watanabe *et al.*, the Examiner contends that Watanabe *et al.* disclose a mixture of EVOH and a resin containing an unsaturated carboxylic acid such as acrylic or methacrylic acid. However, noteworthy is that an ethylenic copolymer (A) used in Watanabe *et al.* together with EVOH is a copolymer having an *ethylene unit*. Accordingly, the (meth)acrylic acid polymer (b2) does not contain any monomeric component of hydrocarbon as described above.

Concerning Super *et al.*, the Examiner contends that Super *et al.* disclose a gas barrier film comprising a polypropylene layer, a modified polypropylene layer and a barrier EVOH layer. It is certain that Super *et al.* disclose the EVOH layer and the carboxy-modified polypropylene layer, but there is no disclosure therein in case of blending these layers. In addition, the (meth)acrylic acid polymer (b2) does not contain any monomeric component of

Application No. 10/810,587
Attorney Docket No. 042234

Amendment under 37 C.F.R. §1.111
Amendment filed: August 10, 2006

hydrocarbon as frequently described above, and is quite different from the carboxy modified polypropylene in Super *et al.*

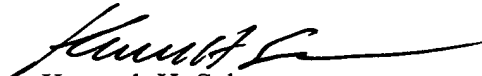
In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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